

## Effects of Sicilian *Opuntia ficus-indica* juice on heart rate variability after a maximal exercise in young physically active women

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The consumption of *Opuntia ficus-indica* (OFI) has been shown to increase the heart rate variability (HRV), a non-invasive marker of cardiac autonomic control [1], in high-level athletes [2]. The aim of this study was to investigate the effects of Sicilian OFI juice supplementation on post-exercise recovery using HRV analysis in young physically active women. This study was a randomized, double blind, placebo controlled and crossover design. Eight women (23.25±2.95 years old, weight of 54.13±9.05 kg, height of 157.75±0.66 cm and BMI of 21.69±0.66 kg/m<sup>2</sup>) were randomly divided into 2 groups and each group was supplied with either 50 ml OFI, diluted to 170 ml with water, or 170 ml Placebo (PL) containing the same concentration of fruit juice ingredients except for Vitamin C and indicaxanthin. They consumed OFI or PL every day for 3 days before of maximal effort test on cycle ergometer and continued to take it for 2 consecutive days after testing. HRV variables (LF, HF, LF/HF and rMSSD) were recorded pre- and post-test, 24 h and 48 h post-test in both groups using a portable heart rate monitor and analysed with Kubios HRV 2.2 software. The differences were calculated with ANOVA analysis and considered significant with  $P < 0.05$ .

Sympathetic activity (LF) was significantly lower in OFI than PL group 24h post-test. In OFI group, LF was significantly lower 24h post-test than post-test value.

In conclusion, OFI supplementation might reduce the metabolic stress induced by intense exercise and improve recovery status in physically active women.

### References

- [1] Thayer et al. (2012) A meta-analysis of heart rate variability and neuroimaging studies: implications for heart rate variability as a marker of stress and health. *Neurosci Biobehav Rev* 36: 747–756.
- [2] Schmitt et al. (2008) *Opuntia ficus indica* increases heart-rate variability in high-level athletes. *Int J Sport Nutr Exerc Metab* 18: 169-178.

### Key words

Antioxidant supplementation, heart rate variability, autonomic nervous system, metabolic stress.